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Vermont Energy Efficiency Evaluation Activities and Plans

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Public Service Department Role

- Ratepayer Advocate
- Delegated Responsibility for Energy Efficiency Evaluation by Public Service Board
  - Activities related to Efficiency Vermont and Burlington Electric Department

- Ongoing PSB Docket 2015-2017 Budget Setting (electric and thermal)

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Current Activities:

Demand Resource Plan Activities

A. Electric EE Scenarios & Modeling
B. Potential Studies
C. Rate & Bill Impacts

Other Evaluation Activities

D. Savings Verification – Ongoing
E. Forward Capacity Market Participation – Ongoing
F. EEU performance Benchmarking – Ongoing

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A. Scenarios & Modeling

1. all economically achievable potential through level budgets (adjusted for inflation) over twenty years

2. all economically achievable potential through the extension of the current 2012-2031 DRP through 2034

3. ramp up to and maintenance of acquisition of 3% savings relative to annual electric energy usage by year 2019

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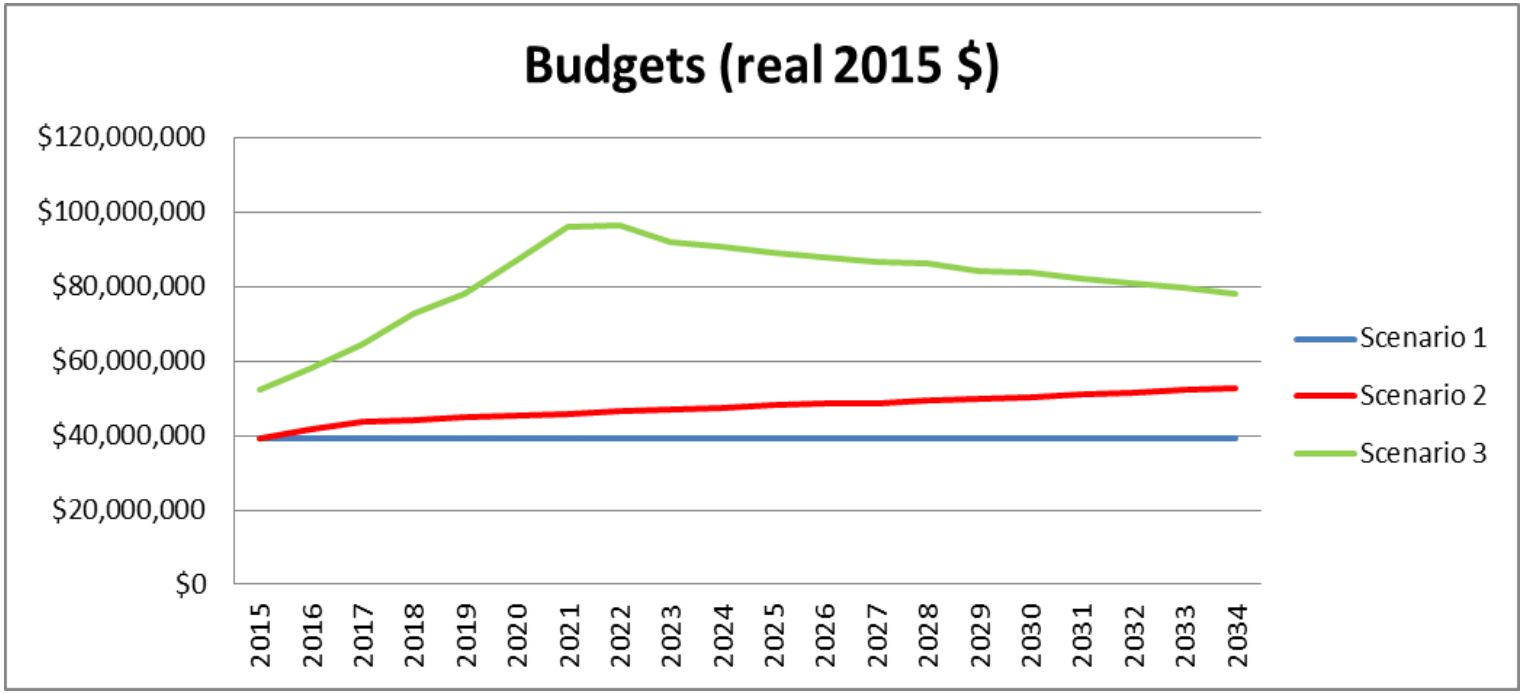
VEIC Modeling – Electric

Scenario	Budget	MWh Goal	$/MWh
1	$ 787,409,000	1,684,838	$ 467.35
2	$ 949,440,000	1,830,778	$ 518.60
3	$ 1,627,687,510	2,589,305	$ 628.62



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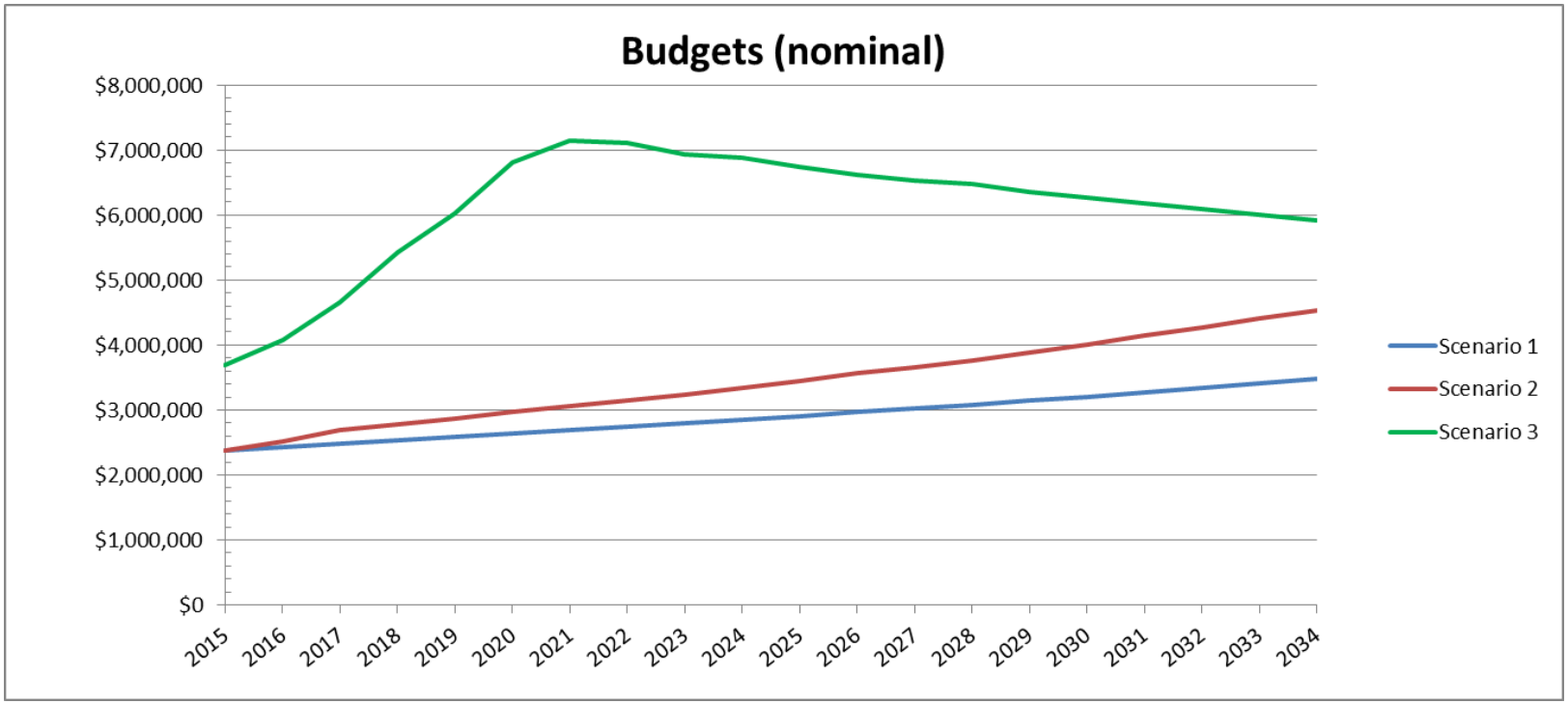
BED Modeling – Electric

Scenario	Budget	MWh Goal	$/MWh
1	$ 57,935,118	102,282	$ 566.43
2	$ 68,687,276	109,026	$ 630.01
3	$ 121,965,721	181,679	$ 671.33



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VEIC & BED Modeling – Thermal

2015-2024

	Estimated Budget	Estimated MMbtu
VEIC	$ 71,189,401	883,860
BED	$ 1,055,444	4,365

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B. Potential Study

Potential Study – Overview

Not Technically Feasable	Technical Potential			
Not Technically Feasable	Not Cost Effective	Economic Potential		
Not Technically Feasable	Not Cost Effective	Market & Adoption Barriers	Achievable Potential	
Not Technically Feasable	Not Cost Effective	Market & Adoption Barriers	Program Design, Budget, Staffing, & Time Constraints	Program Potential

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Potential Study Methodology

- Residential:
  - "Bottom-up" approach to calculate potential
- C&I:
  - "Top-down" approach that disaggregates the load forecast into building types, end-uses, and measure-level savings.
- Updates include:
  - Avoided Costs Values, Load Forecasts, Measure Lists/Characterizations,Baselines
  - Behavior Measures – uplift (1%)

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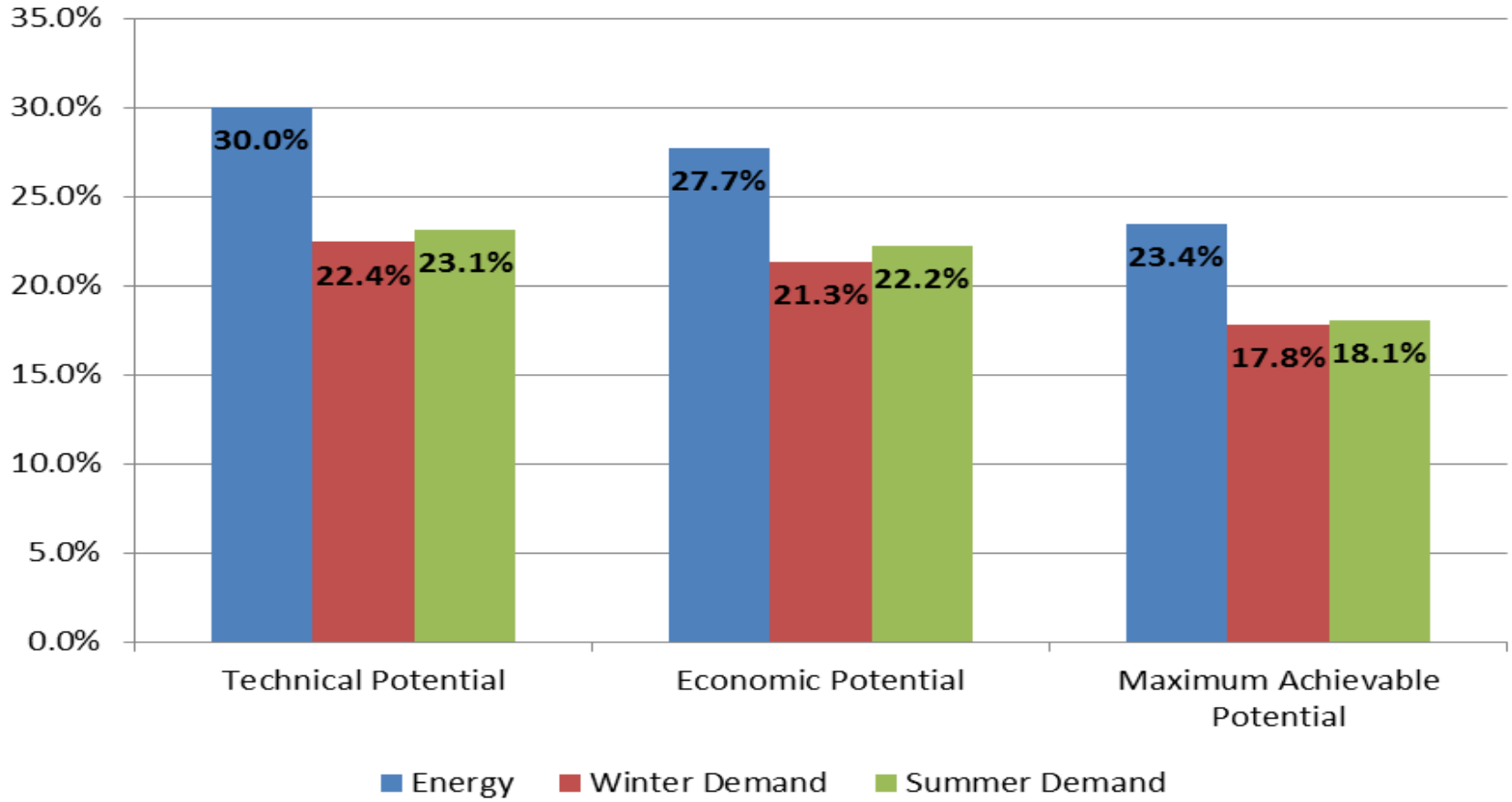
Potential Study Statewide Results



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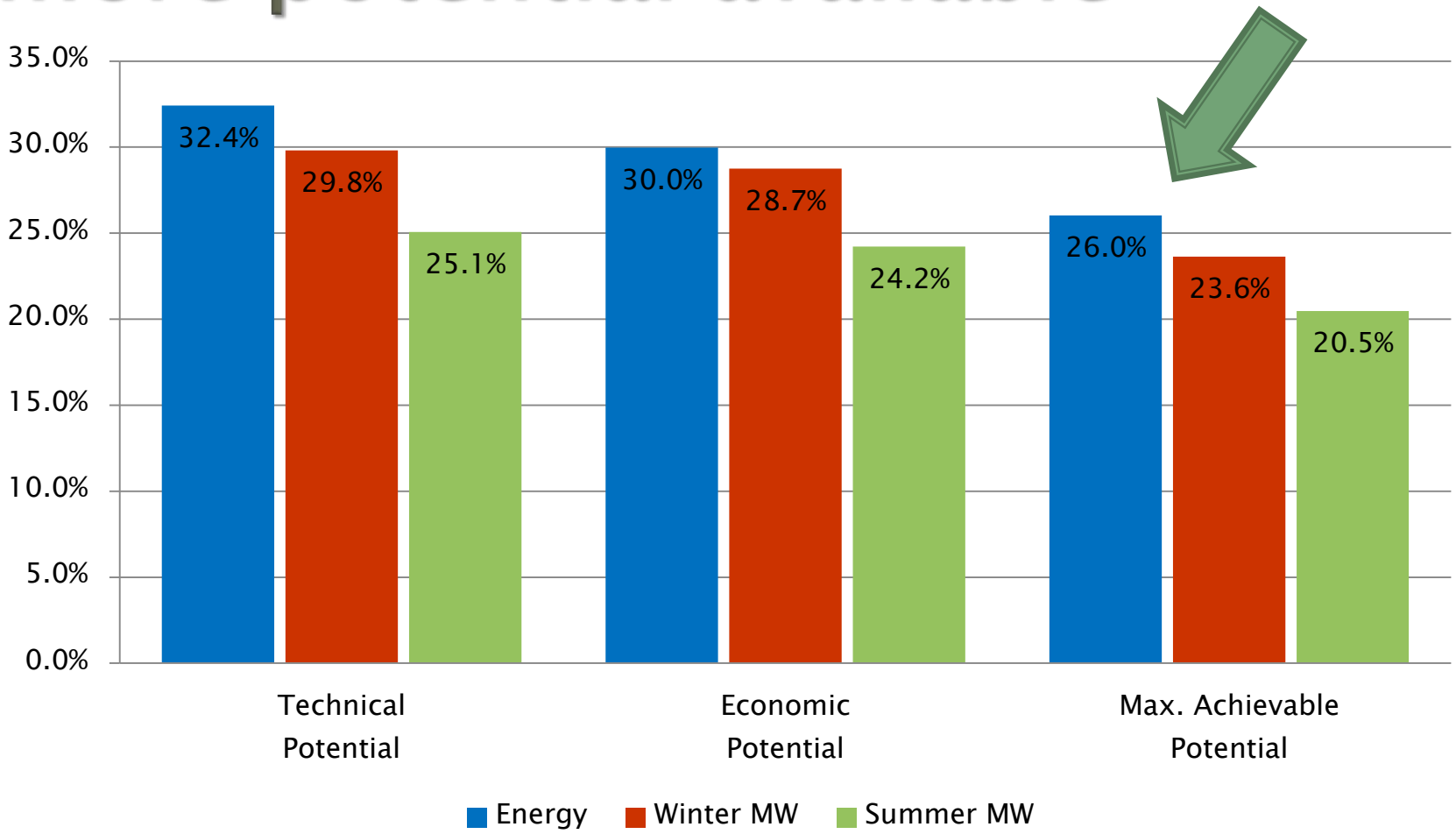
2011 Study – Only slightly more potential available



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Societal Test (benefit/cost ratio)

	Benefits (in Millions)	Cost (in Millions)	B/C Ratio
Statewide			
NVP $2014	$4,240.6	$1,188.9	3.6
EVT Territory			
NVP $2014	$4,001.5	$1,116.1	3.6
BED Territory			
NVP $2014	$239.1	$72.8	3.3

VT Societal Test Benefits & Costs (Achievable Potential - All Sectors Combined)

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Summary – Potential Study

- Significant Cost-Effective Potential Remains in all sectors!

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C. Rate and Bill Impacts of Modeled Electric EE Budgets

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Overview – Rate and Bill Impact

- Synapse Energy Economics, Inc.

- Rate Impact: Bottom Up approach based on changes in revenue requirements associated with 4 general rate components; change in MWh sales
- Bill Impact: Reflects both impacts of changes in rates and bills across all customers within a sector on average.

- Study Compares EEU modeled Scenario 2 (Inaugural DRP extended) to "No EE"; Scenario's 1 and 3 are analyzed relative to Scenario 2.

- Modeled Costs and Savings – 38 years
  - NRA, Compensation, Evaluation, Other Costs as estimated in 2011 DRP

- Residential, Commercial non-demand, Commercial Demand

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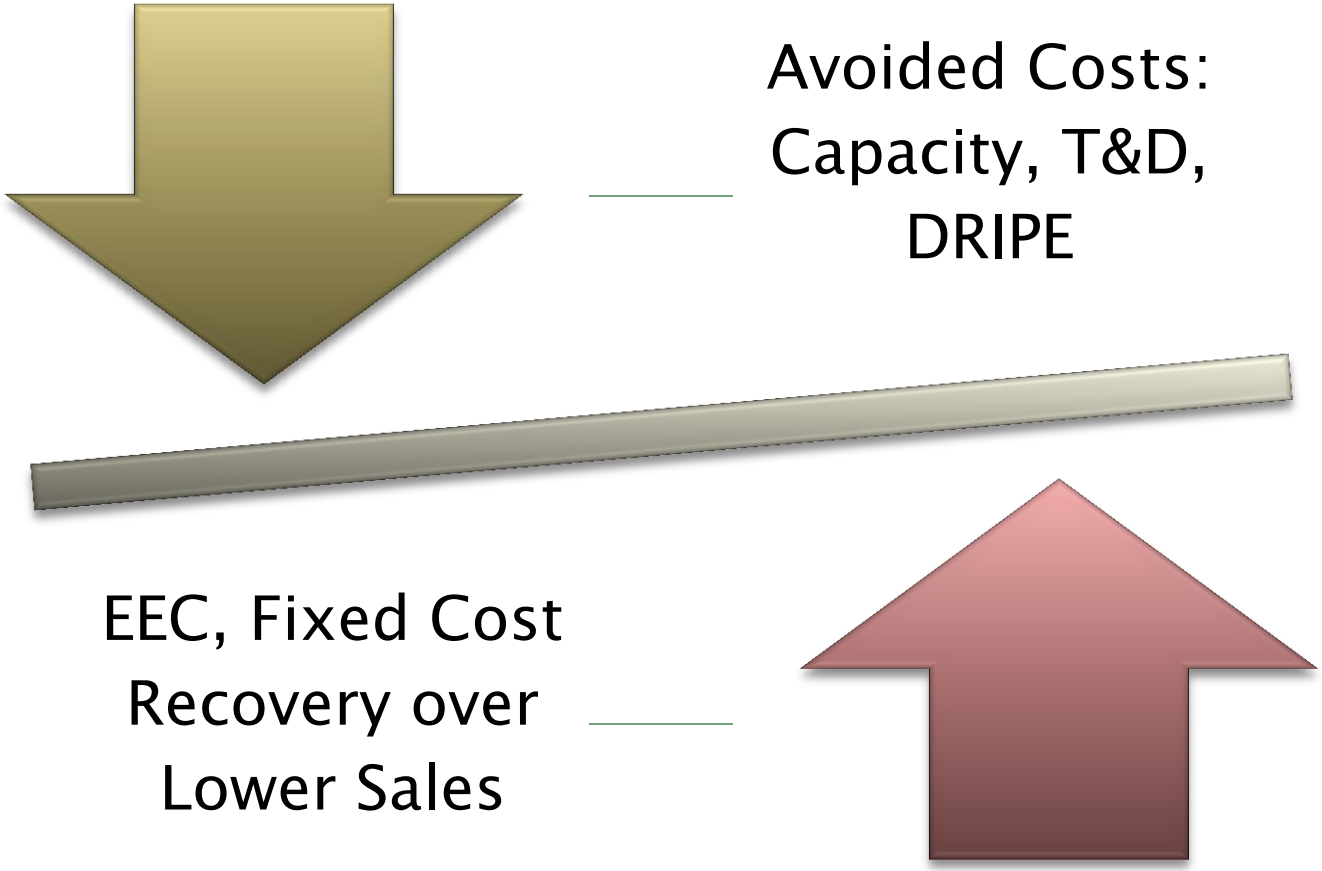
Rate Pressures



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Bill Impact: Baseline Usage

- Pre-EE Customer Average Monthly Usage
  - Residential
    - Including Low-Income/Multifamily sectors
  - Commercial & Industrial
    - Highly variable Usage Patterns
    - Lumped into one Business Sector
      - Demand and Non-Demand Customers
    - Example Customers instead of Average Customers

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Bill Impact: Post-EE Usage

- Non-Participants
  - Usage unchanged i.e. Savings = 0 Kwh
  - Bills change proportionally to rates
    - Post EE rate x Usage
- Participants
  - Monthly Savings subtracted from Pre EE usage
    - Participation & Savings Levels Vary Across Scenarios
  - Bill Impacted by change in usage & change in rate
    - Non-Participant Bill minus Participant Bill
- Average Customer
  - Participants & Non-Participants combined
  - Bill Impact for customer class as whole

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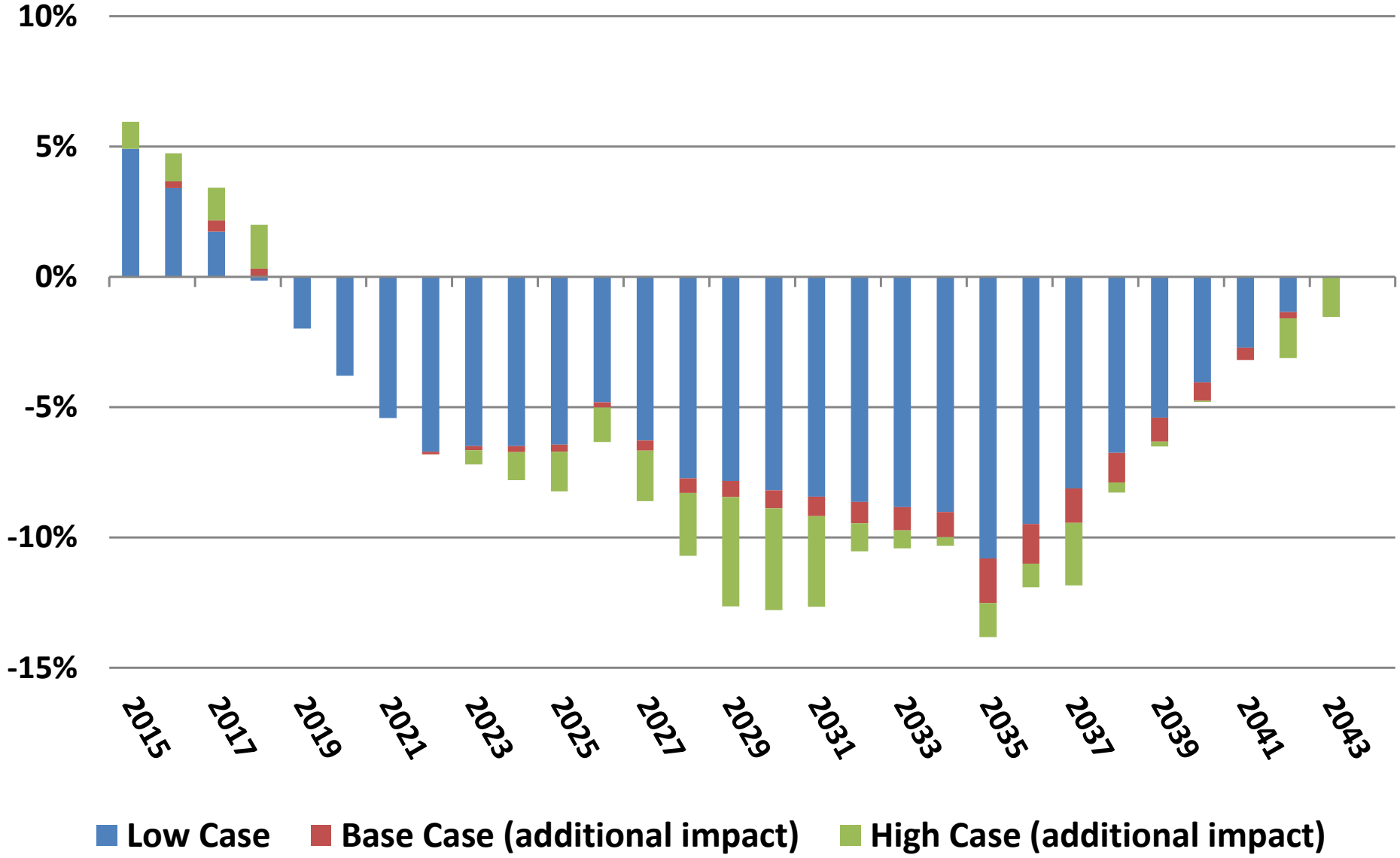
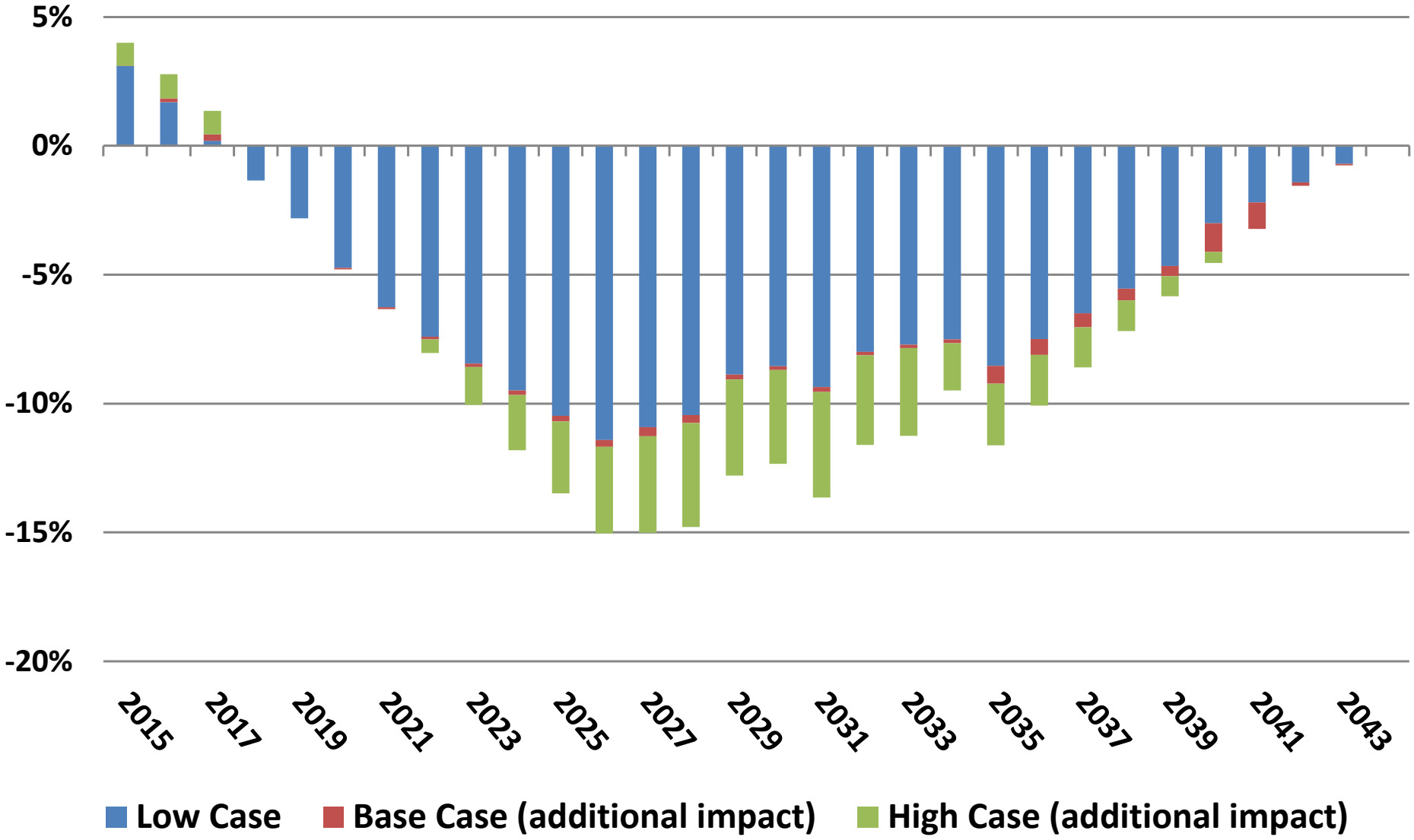
EVT Residential: Change in Average Customer Bill Relative to No EE



EVT Business Non-Demand: Change in Average Customer Bill Relative to No EE



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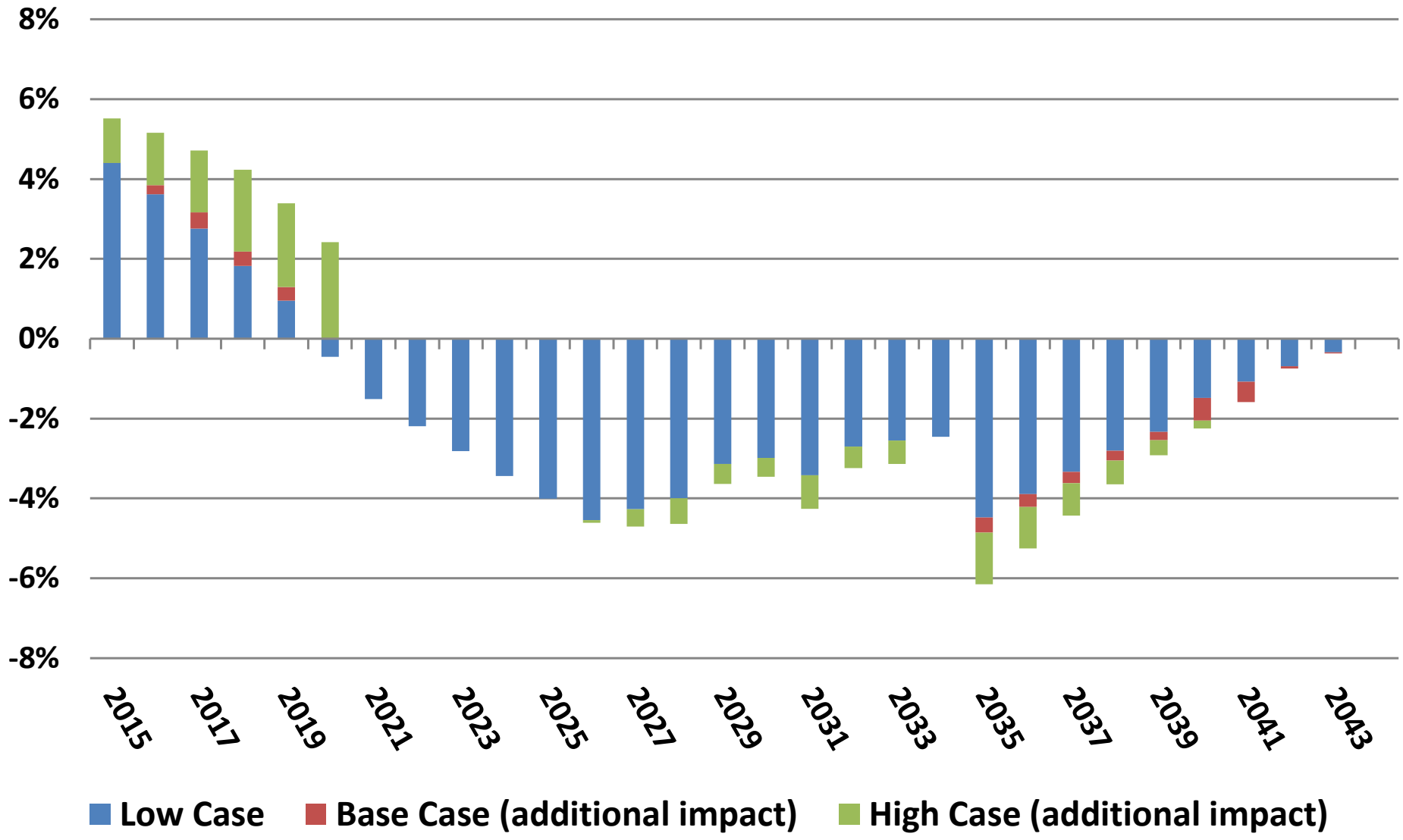

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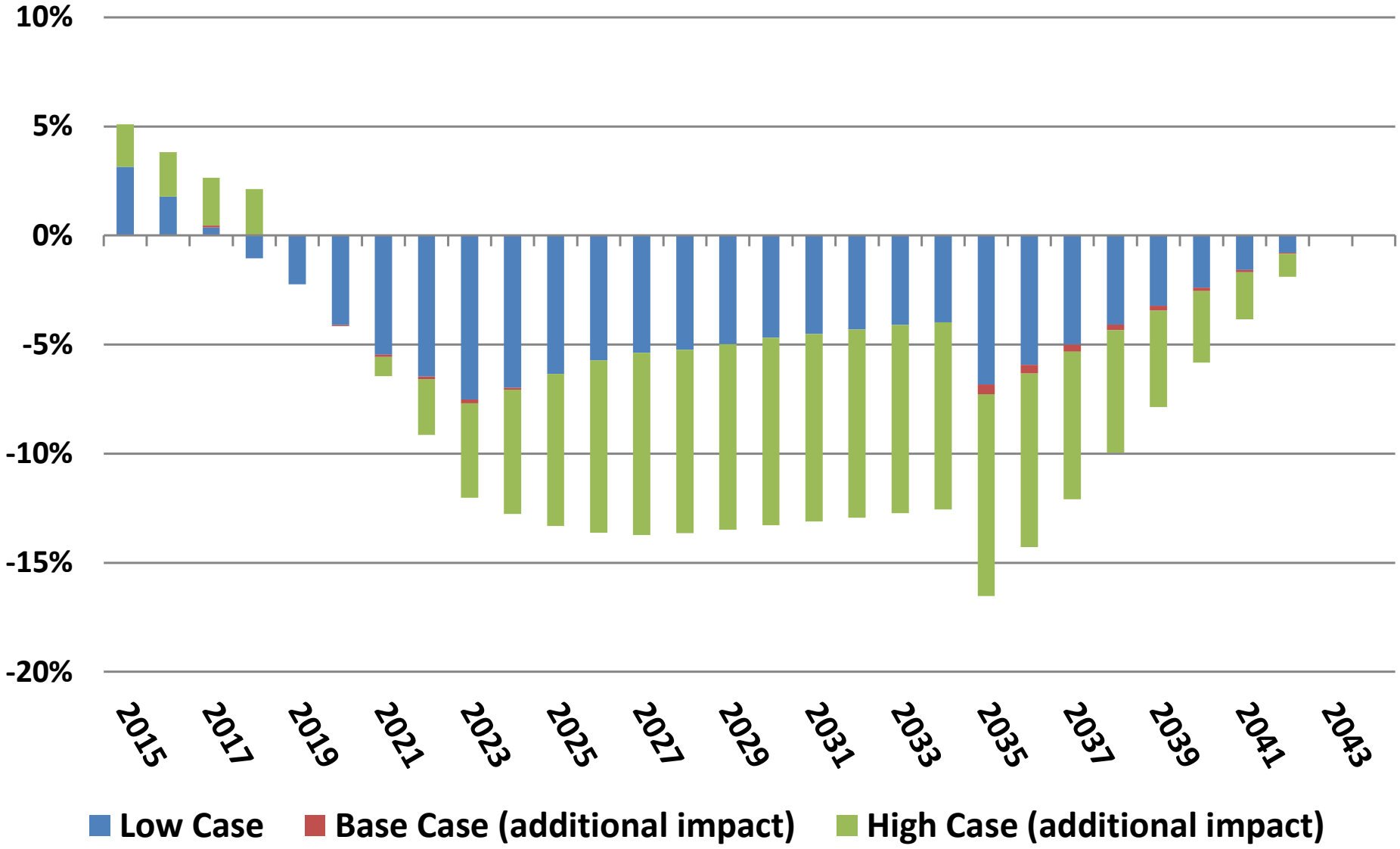

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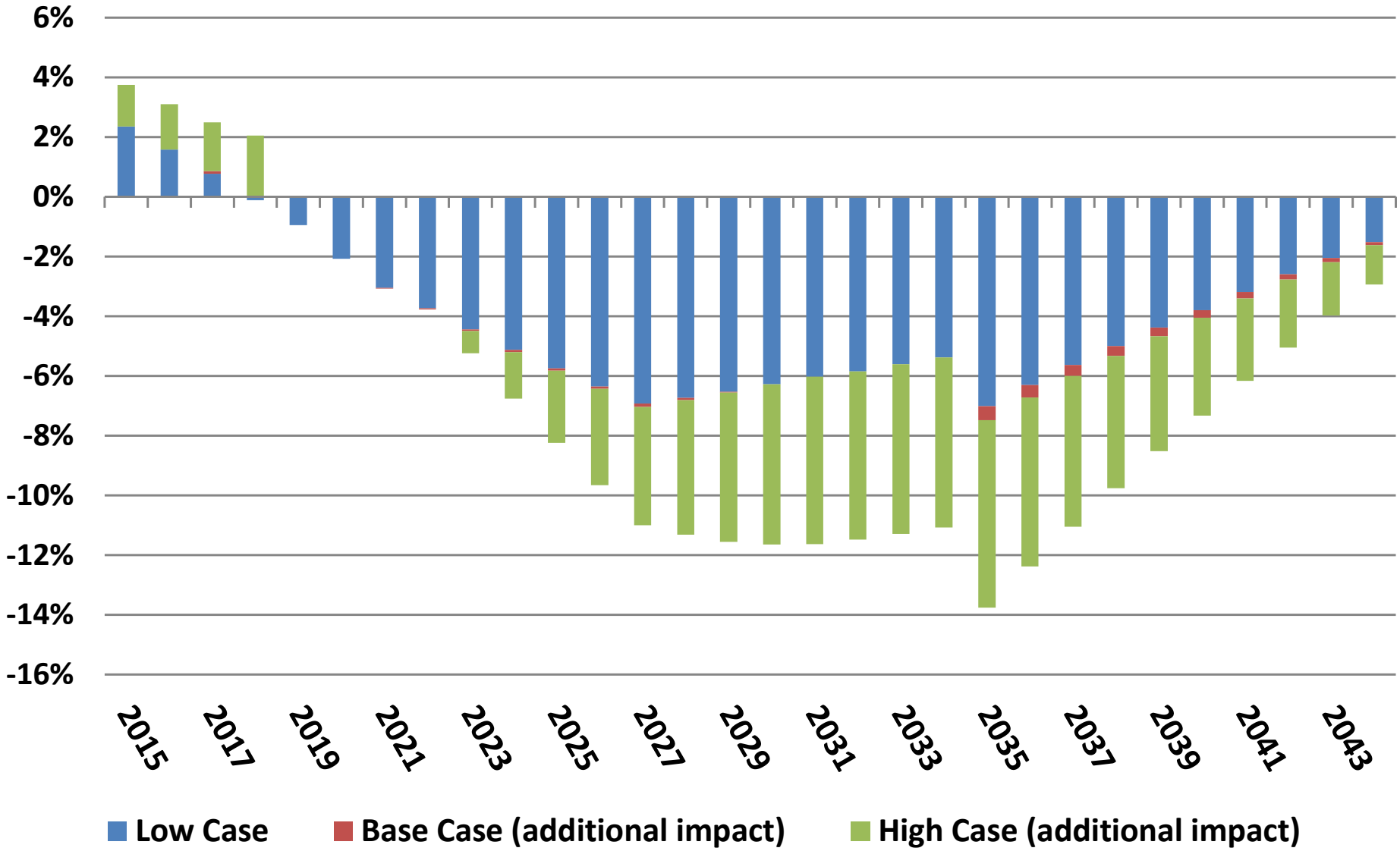

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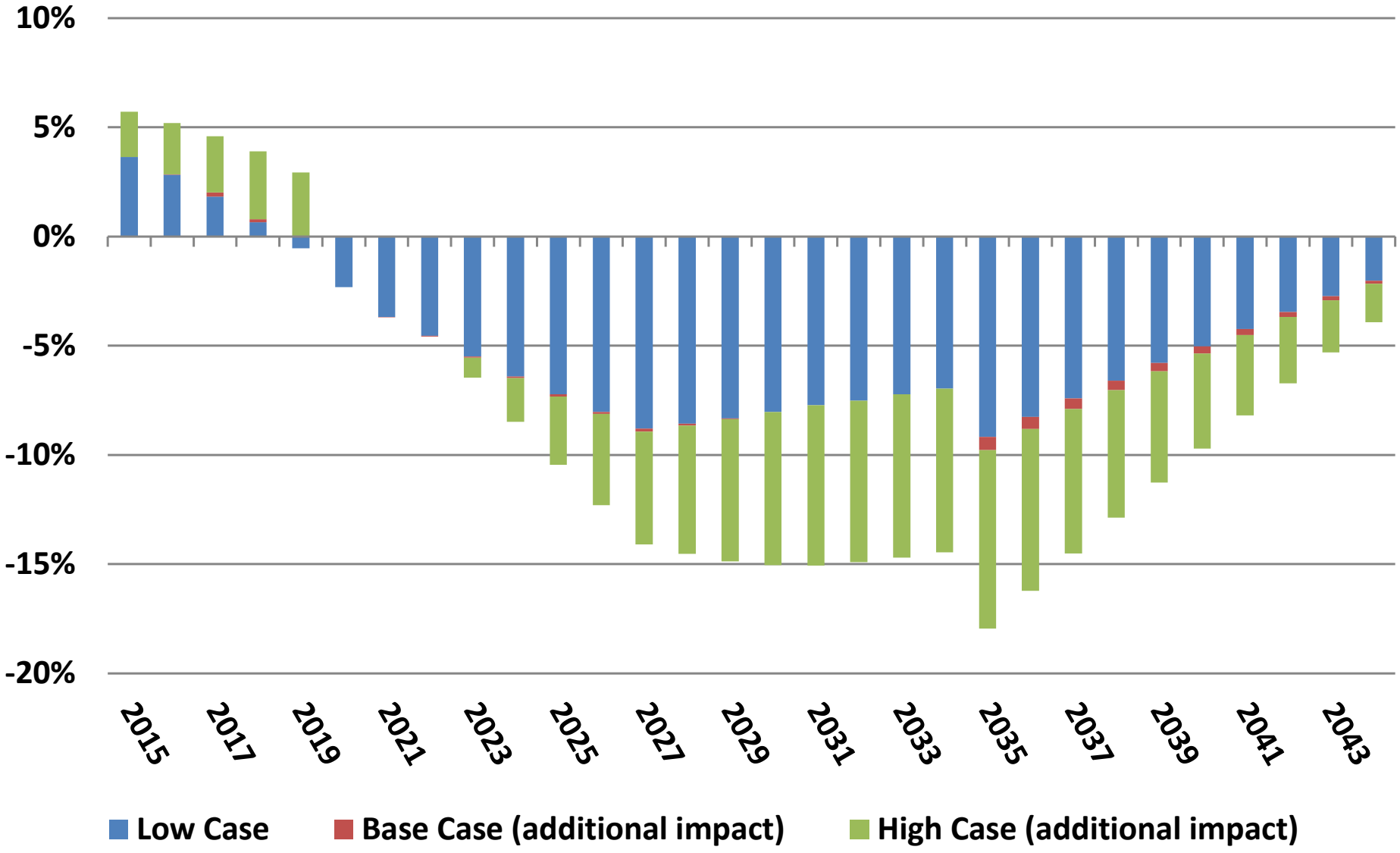

Rate and Bill Impact PSD Summary

- Results are indicative; not definitive
- Capacity Savings create significant benefits and could reduce rate impacts

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Future Activities

- Residential and Commercial Market Assessments
- Residential Thermal EE Impact and Process
- Residential and Commercial Behavioral Evaluations

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Questions?

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